a pliant crossbeam located in a hollow in the load carrying frame, said crossbeam lying in the same plane as said frame and being deflectable by the application of a force to the load carrying frame and the consequent movement of the force transmitting segment of the load carrying frame;

a force sensing element mounted in said hollow between a second segment of said load carrying frame and said crossbeam and lying in the same plane as said frame and said crossbeam; and

said crossbeam being so configured and so anchored at opposite ends thereof to opposed elements of said frame as to apply a compressive preloading force to, and along a sensing axis of, said sensing element.

22. A transducer as defined in claim 21 in which said sensing element is in direct contact with said crossbeam.

23. A transducer as defined in claim 21 in which said sensing element preloaded and trapped between said crossbeam and said load carrying frame.

24. A transducer as defined in claim 21 in which the crossbeam has at least one segment configured to increase the compliance of said crossbeam.

25. A transducer as defined in claim 21 in which the force transmitting segment and the crossbeam are so related as to preload the sensing element.

26. A force sensing transducer as defined in claim 21 wherein said frame is the outermost of plural nested frames and wherein there are slots in opposite sides of said frame, said slots being so located and configured as to keep excessive force from being applied to said force sensing element

27. A transducer as defined in claim 22 in which said crossbeam has arms which are angled from the normal toward the force transmitting segment of the load carrying frame to alter the ratio of the force-associated strains in said frame and said sensing element.

28. A transducer as defined in claim 22 in which said load carrying frame and said crossbeam are integral components of said transducer.

29. A transducer as defined in claim 22 in which the load carrying frame has force transmitting components located on opposite sides of said crossbeam.

30. A transducer as defined in claim 28 which has a force sensing element mounted between said crossbeam and each of said force transmitting segments.

31. A force sensing device as defined in claim 29 in which one of said sensing elements is responsive to a force applied to the transducer and the other of said sensing elements supplies a reference force.

32. A force sensing device as defined in claim 29 in which a first and second of said sensing elements are respectively responsive to movement of first and second ones of said force

transmitting segments to generate a signal indicative of the magnitude of a force applied to said transducer.

33. A transducer as defined in claim 22 which said load carrying frame has integral, hollow, inner and outer elements, wherein said sensing element is mounted in said inner element, and wherein the ends of the crossbeam are joined to said inner element on opposite sides of that element.

34. A force transducer as defined in claim 32 in which said inner element has segments which are compliant along the path of displacement of said force transmitting segments and thereby allow the force transmitted by those segments to the sensing elements to be increased while keeping the stresses in said crossbeam within acceptable limits.

35. A transducer as defined in claim 22 which has an integral, hollow, intermediate element between said inner and outer elements.

36. A transducer as defined in claim 1 in which the load carrying frame is so constructed and configured as to keep excessive forces from being transmitted to the force sensing element.

37. A transducer as defined in claim 1 in which said sensing elements comprise at least one vibrating crystal.

38. A transducer as defined in claim 1 in which said load carrying frame has at least one jointed segment for increasing the compliance of said component.

39. A force sensing transducer which comprises:

a frame having a load carrying component force transmitting segment which moves as force is applied to said component;

a crossbeam mounted in a hollow in the load carrying component, said crossbeam being deflectable by the application of a force to said load carrying component; and

a preloaded force sensing element so mounted in the hollow of said load carrying component relative to said crossbeam that deflection of said crossbeam imposes a signal generating strain on said sensing element;

said force sensing element being in surface-to-surface contact with a preloading element;

the sensing element and the preloading element lying in the same plane; and

the contacted surface diameter of the preloading element and the span across the sensing element being substantially equal and thereby reducing errors attributable to out-of-plane relative rotation between the sensing element and the preloading element.

40. A transducer as defined in claim 39 in which said force sensing element is preloaded and retained in a hollow of said frame by said crossbeam.

41. A force sensing transducer which comprises:

a frame having a load carrying component, said load carrying component having a force transmitting segment that moves when a force is applied to said frame;

first and second internal components mounted in said frame; and

a force sensing element;

at least one of said first and second internal components being deflectable in response to the movement of the force transmitting segment of the load carrying component engendered by the imposition of a force on said frame; and

said force sensing element being located between said first and second internal components.

42. A force sensing transducer which comprises:

a frame having a load carrying component, said load carrying component having a force transmitting segment that moves when a force is applied to said frame;